pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0081876**
Facility Type	**Non-Municipal**	APS ID	**4172**
Major / Minor	**Minor**	Authorization ID	**1316420**

Applicant and Facility Information

Applicant Name	**Audubon Park Inc.**	Facility Name	**Audubon Park MHP**
Applicant Address	28 Cardinal Drive	Facility Address	32 Audubon Park
	Dillsburg, PA 17010		Dillsburg, PA 17019-9137
Applicant Contact	Marry Penner	Facility Contact	Derek Hemler
Applicant Phone	(717) 439-7319	Facility Phone	(717) 634-4017
Client ID	43816	Site ID	447417
Ch 94 Load Status	Not Overloaded	Municipality	Monaghan Township
Connection Status		County	York
Date Application Received	May 2, 2020	EPA Waived?	Yes
Date Application Accepted	June 15, 2020	If No, Reason	

Purpose of Application: NPDES permit Renewal.

Summary of Review

Audubon Park, Inc. has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit for Audubon Park MHP wastewater treatment plant. This permit renewal application was received on May 21, 2020. The permit was last reissued on July 21, 2015, authorizing discharge of treated sewage from the existing treatment plant located in Monaghan Township, York County into UNT to Yellow Breeches Creek. The permit was expired on July 31, 2020 but the terms and conditions of the permit have been extended since that time.

The WWTP has a design flow and hydraulic design capacity of 0.015 MGD.

Sludge use and disposal description and location(s): N/A due to the liquid sludge is hauled by Smith's disposal facility.

The WQM No. 6785411 was issued in 1984.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The E. Coli. monitoring and report requirements will be added to the proposed permit

Based on the review outlined in this report, it is recommended that the permit be drafted and published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*HilaryLe* Hilary H. Le / Environmental Engineering Specialist	August 5, 2021
X		*Maria D. Bebenek for Daniel W, Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	August 27, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.015
Latitude	40º 8' 17.12"	Longitude	-76º 58' 30.23"
Quad Name	Lemoyne	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Yellow Breeches Creek (CWF)	Stream Code	63122
NHD Com ID	56407223	RMI	1.91 miles
Drainage Area	0.27 mi.^{2}	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-E	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	United Water PA		
PWS Waters	Yellow Breeches Creek	Flow at Intake (cfs)	
PWS RMI	7.72 miles	Distance from Outfall (mi)	Approximate 13 miles

Changes Since Last Permit Issuance: none

Drainage Area
The discharge is to Unnamed Tributary to Yellow Breeches Creek at RMI 1.91 miles. A drainage area upstream of the discharge is estimated to be 0.27 mi.^{2}, according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
Streamflow will be calculated from the nearest downstream Streamgage number 01571500 located in Yellow Breeches Creek near Camp Hill, PA which is 3.1 miles above mouth. Q_{7-10} at this gage is 58.9 cfs and drainage area is 213 mi.^{2} according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Low Flow Yield = 58.9 cfs/213 mi.^{2} = 0.277 cfs/mi.^{2}
Q_{7-10} = 0.277 cfs/mi.^{2}*0.27 mi.^{2} = 0.075 cfs
Q_{30-10} = 1.36 * 0.075 cfs = 0.102 cfs
Q_{1-10} = 0.64 * 0.075 cfs = 0.048 cfs

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 0.075 cfs / [0.015 MGD * (1.547 cfs/MGD)] =3.23:1

Unnamed Tributary to Yellow Breeches Creek
25 Pa. Code § 93.9o classifies Unnamed Tributary to Yellow Breeches Creek as Cold-Water Fishes (CWF) surface water. Based on the 2020 Integrated Report, Unnamed Tributary to Yellow Breeches Creek, assessment unit ID 11427, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The nearest downstream public water supply intake is the United Water Pennsylvania on Yellow Breeches Creek in York County, approximately 13 miles downstream of this discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Audubon Village MHP				
WQM Permit No.	**Issuance Date**			
6785411	1984			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage			Gas Chlorine	0.015
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.015		Not Overloaded		

Changes Since Last Permit Issuance: none

The current treatment process is as follows:

Comminutor (Bar screen) → EQ tanks /basins (2) → Aeration basins (4) (tank) → Secondary Clarifiers (2) → Media Filter Chlorinator Disinfection → (Chlorine Contact tank) → Discharge.

The chemical uses such as DelPAC XG for coagulation & removal of organic matter and TSS, and sodium Hypochlorite for disinfectant.

Compliance History	
Summary of DMRs:	The DMRs reported from July 1, 2020 to June 30, 2021 are summarized in the Table below (Pages # 4, & 5).
Summary of Inspections:	2/23/2021: Mr. Bettinger, DEP WQS, conducted an incident response inspection to follow up on an EQ-tank discharge during the COVID-19 restrictions. The violation is noted P.L. 1987, No.394, Sec 201: CSL – Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth an overwhelmed EQ tank led to an unauthorized, unpermitted discharge of untreated sewage to the surface of the ground. Outfall 001 appeared clear and no solids were present at the outfall or UNT Yellow Breaches Creek. 3/3/2020: Austen Randecker, DEP WQS, conducted a compliance evaluation inspection. There were recommendations to maintaining a secondary thermometer in the effluent sampler, verify lab registration ID, and monitor MLSS and SVI for wasting. Effluent was clear. There were no identified violations during inspection. The filed test results were within permit limits.
Other Comments:	There are no open violations associated to the facility or the permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly	0.009	0.009	0.012	0.01	0.011	0.011	0.011	0.008	0.008	0.007	0.007	0.008
Flow (MGD) Daily Maximum	0.013	0.013	0.086	0.019	0.027	0.025	0.046	0.014	0.016	0.01	0.011	0.038
pH (S.U.) Minimum	7.14	7.49	7.57	7.46	7.57	6.88	6.93	7.29	8.06	7.61	7.50	7.55
pH (S.U.) Maximum	8.37	8.55	8.50	8.50	8.51	8.64	8.99	8.72	8.91	8.85	8.83	8.92
DO (mg/L) Minimum	7.00	7.89	7.96	7.32	7.30	7.45	7.11	6.56	7.19	6.88	6.33	6.92
TRC (mg/L) Average Monthly	0.22	0.28	0.25	0.2	0.25	0.23	0.3	0.35	0.26	0.25	0.22	0.36
TRC (mg/L) Instantaneous Maximum	0.77	0.65	0.7	0.75	0.65	0.61	0.85	0.70	0.79	0.54	0.40	0.73
CBOD5 (mg/L) Average Monthly	< 2.5	< 2.4	< 2.4	< 2.4	< 3	< 7	< 3	< 3	< 3	< 3	< 3	< 3
TSS (mg/L) Average Monthly	5	6	6	8	11	90	6	7	4	3	4	4
Fecal Coliform (CFU/100 ml) Geometric Mean	< 24	< 7	6	< 1	< 3	45	< 1	< 1	< 1	< 8	< 3	5
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	687	43	10	1	93	2420	< 1	< 1	1	57	8	6
Nitrate-Nitrite (mg/L) Average Monthly	< 31.02	< 28.9	< 28.9	< 18.9	< 25.9	< 20.4	< 22.9	< 25.4	< 31.9	< 40.9	< 34.4	< 42.4
Nitrate-Nitrite (lbs) Total Monthly	< 65	< 75	< 69	< 38	< 58	< 50	< 56	< 73	< 49	< 86	< 67	< 83
Total Nitrogen (mg/L) Average Monthly	30.82	29	29	19	25.52	40.09	25.8	25	32	41	34	42
Total Nitrogen (mg/L) Effluent Net Average Monthly	30.82	29	29	19	25.52	40.09	25.8	25	32	41	34	42
Total Nitrogen (lbs) Effluent Net Total Monthly	65	74	68	37	58	122	63	72	49	86	66	82
Total Nitrogen (lbs) Total Monthly	65	74	68	37	58	122	63	72	49	86	66	82

Total Nitrogen (lbs) Effluent Net Total Annual										750		
Total Nitrogen (lbs) Total Annual										750		
Ammonia (mg/L) Average Monthly	< 0.18	< 0.14	< 0.1	< 0.13	< 0.13	< 0.3	4.87	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 0.3	< 0.4	< 0.2	< 0.3	< 0.3	< 0.8	13	< 0.3	< 0.2	< 0.2	< 0.2	< 0.2
TKN (mg/L) Average Monthly	< 0.5	< 0.5	< 0.5	< 0.5	0.52	< 20.36	< 3.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TKN (lbs) Total Monthly	< 1	< 1	< 1	< 1	< 1	< 73	< 9	< 1	< 0.8	< 1	< 1	< 1
Total Phosphorus (mg/L) Average Monthly	0.4	0.24	0.26	0.17	0.52	9.64	0.17	0.18	0.11	0.13	< 0.11	0.29
Total Phosphorus (mg/L) Effluent Net Average Monthly	0.4	0.24	0.26	0.17	0.52	9.64	0.17	0.18	0.11	0.13	< 0.11	0.29
Total Phosphorus (lbs) Effluent Net Total Monthly	0.7	0.6	0.6	0.3	1	34	0.4	0.5	0.2	0.3	< 0.2	0.5
Total Phosphorus (lbs) Total Monthly	0.7	0.6	0.6	0.3	1	34	0.4	0.5	0.2	0.3	< 0.2	0.5
Total Phosphorus (lbs) Effluent Net Total Annual										10		
Total Phosphorus (lbs) Total Annual										10		

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.015
Latitude 40º 8' 17.56" **Longitude** -76º 58' 29.88"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3N calculations are based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached WQM 7.0 computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)

Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 10.2 mg/L as a monthly average and 20.3 mg/L IMAX are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing permit limits of 3.0 mg/l average monthly & 6.0 mg/L IMAX for summer and 9.0 mg/l average monthly & 18.0 mg/L IMAX for winter are more stringent and will be remain in the proposed permit. Monitoring frequency will also remain the same of 2/month. DMR data and site inspections reflect that the plant is capable of meeting this limit.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing limits of 10.0 mg/L monthly average (AML), and 20.0 mg/L instantaneous maximum (IMAX) are more stringent and will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits.

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

E. Coli:
As recommended by DEP's SOP no. BPNPSM-PMT-033, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa Code §92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 2/month will be included in the permit to be consistent with the recommendation from this SOP.

Fecal Coliform:
The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. Therefore, instantaneous maximum limits for summer and winter seasons will be introduced in this renewal to be consistent with regulations. Inspection reports are showing that the permittee is capable of meeting this requirement.

Total Residual Chlorine (TRC):
Spreadsheet based model TRC_CALC was used to determine TRC limits. Stream flow of 0.075 cfs and discharge of 0.015 MGD was used in the calculation. Output from TRC_CALC shows average monthly limit of 0.48 mg/L and IMAX value of 1.575 mg/L which are slightly more stringent and round off will be same as the existing permit limits as 0.5 mg/L average monthly and 1.6 mg/L IMAX. Therefore, the existing permit limits and monitoring frequency of 1/day will remain in the proposed permit, which is consistent with table 6-3 of Permit Writers Manual.

Total Suspended Solids (TSS):
The existing limits of 10.0 mg/L average monthly and 20.0 mg/L instantaneous maximum will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has been consistently achieving concentrations below these limits.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1) which is consistent with previous permit renewal.

Total Phosphorus:
The existing Total Phosphorus average monthly of 2.0 mg/L & IMAX of 4.0 mg/L limits will remain in the proposed permit, due to federal anti-backsliding requirements.

Stormwater:
There is no known stormwater outfall associated with this facility.

Chesapeake Bay Strategy:
According to DEP's Chesapeake Bay Phase II Watershed Implementation Plan (WIP) Wastewater Supplement, this facility is considered a phase 5 non-significant sewage discharger with design flow less than 0.2 MGD but greater than 0.002 MGD. In general, DEP will issue permits for all phase 5 facilities with monitoring and reporting for Total Nitrogen (TN) and Total Phosphorus (TP) throughout the permit term at a frequency no less than annually. Furthermore, DEP's SOP No. BPNPSM-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 gpd. At this time, the Department is not requiring a total maximum annual nitrogen or phosphorus loading cap. Ammonia-Nitrogen, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, TN, and TP monitoring is already included in the existing permit and will remain in the proposed renewal.

The 2/month "Monitor & Report" requirements for Ammonia-Nitrogen, Nitrate-Nitrite as N, and Total Kjeldahl Nitrogen; and 2/month calculation "Monitor & Report" for TN will remain in the proposed permit. The yearly calculation "report" for TP & TN will remain in the proposed permit.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

303(d) Listed Streams:
The stream is listed as attaining its designated use(s).

WQM 7.0:

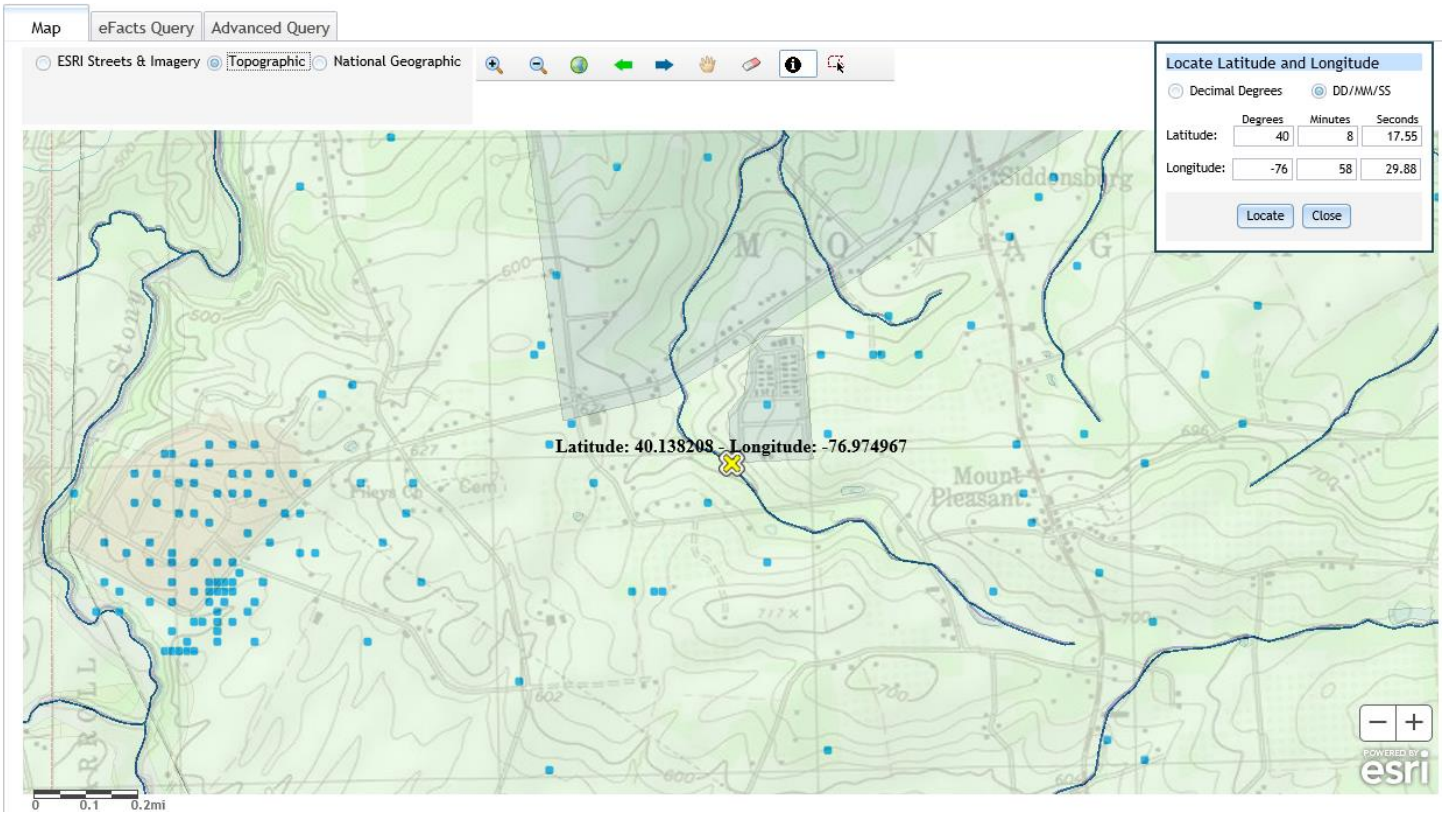
The following two nodes were used in modeling:

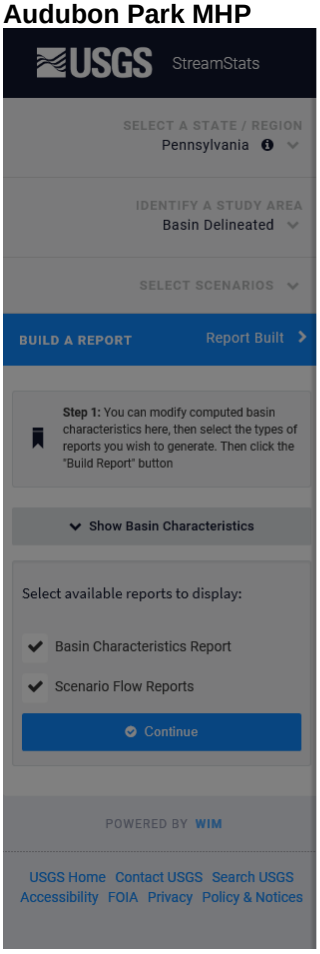
Node 1: Outfall 001 on Unnamed Tributary to Yellow Breeches Creek (63122)

Elevation:	585 ft (USGS National Map Viewer)
Drainage Area:	0.27 mi^2 (USGS PA StreamStats)
River Mile Index:	1.91 (PA DEP eMapPA)
Low Flow Yield:	0.277 cfs/mi^2
Discharge Flow:	0.015 MGD

Node 2: Just before confluence with Unnamed Tributary to Yellow Breeches Creek (63123)

Elevation:	471 ft (USGS National Map Viewer)
Drainage Area:	0.63 mi^2 (USGS PA StreamStats)
River Mile Index:	0.60 (PA DEP eMapPA)
Low Flow Yield:	0.277 cfs/mi^2
Discharge Flow:	0.0 MGD





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.27	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	3.23	miles per square mile
ROCKDEP	Depth to rock	4	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

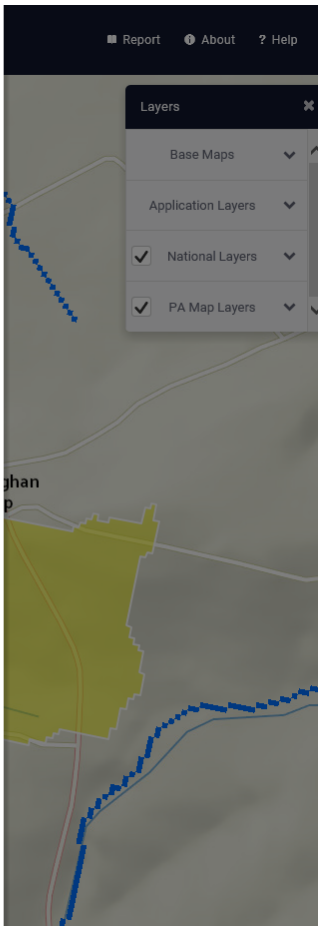
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.27	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	3.23	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

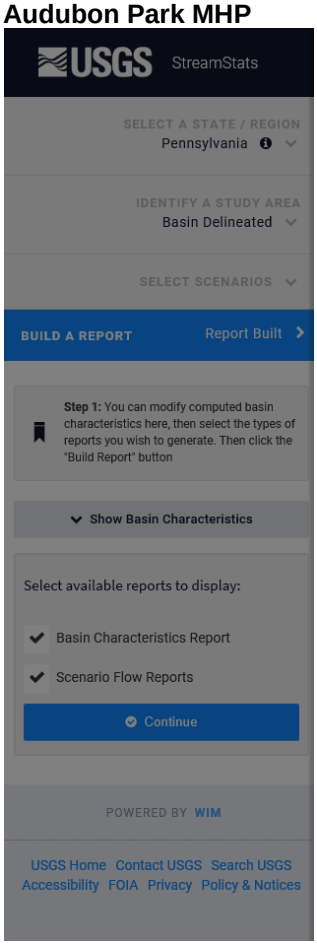
Low-Flow Statistics Disclaimers [Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00886	ft^3/s
30 Day 2 Year Low Flow	0.014	ft^3/s
7 Day 10 Year Low Flow	0.00265	ft^3/s
30 Day 10 Year Low Flow	0.00426	ft^3/s
90 Day 10 Year Low Flow	0.00829	ft^3/s





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.63	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	2.58	miles per square mile
ROCKDEP	Depth to rock	4	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

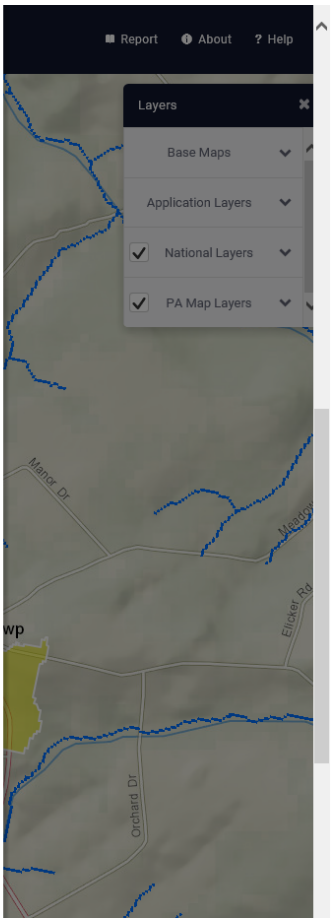
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.63	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	2.58	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

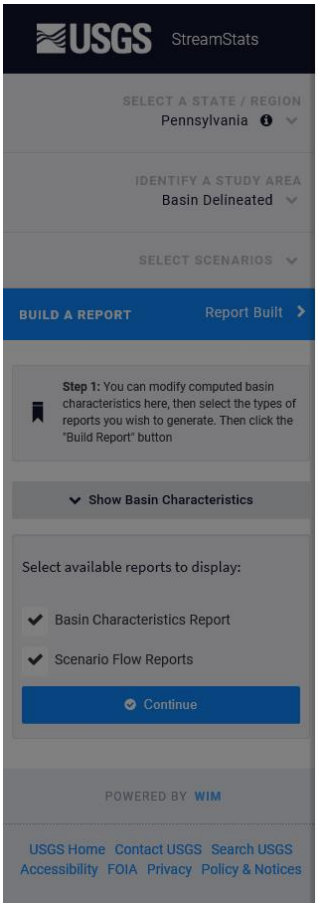
Low-Flow Statistics Disclaimers [Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0277	ft^3/s
30 Day 2 Year Low Flow	0.0427	ft^3/s
7 Day 10 Year Low Flow	0.00891	ft^3/s
30 Day 10 Year Low Flow	0.014	ft^3/s
90 Day 10 Year Low Flow	0.0265	ft^3/s





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	213	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.3	miles per square mile
ROCKDEP	Depth to rock	5.2	feet
CARBON	Percentage of area of carbonate rock	34.18	percent

Low-Flow Statistics Parameters [99.8 Percent (212 square miles) Low Flow Region 2]

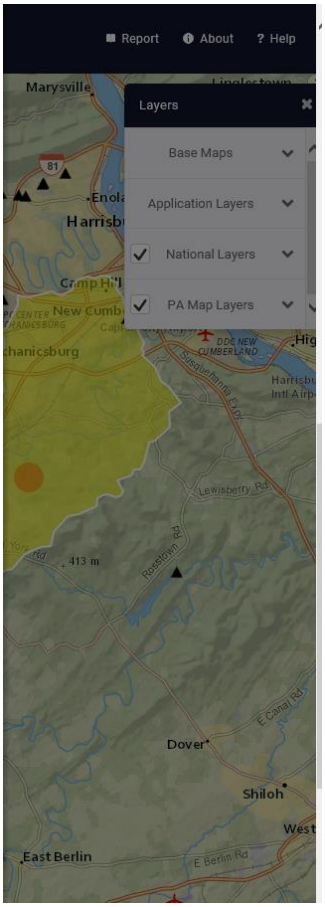
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	213	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	1.3	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5.2	feet	3.32	5.65
CARBON	Percent Carbonate	34.18	percent	0	99

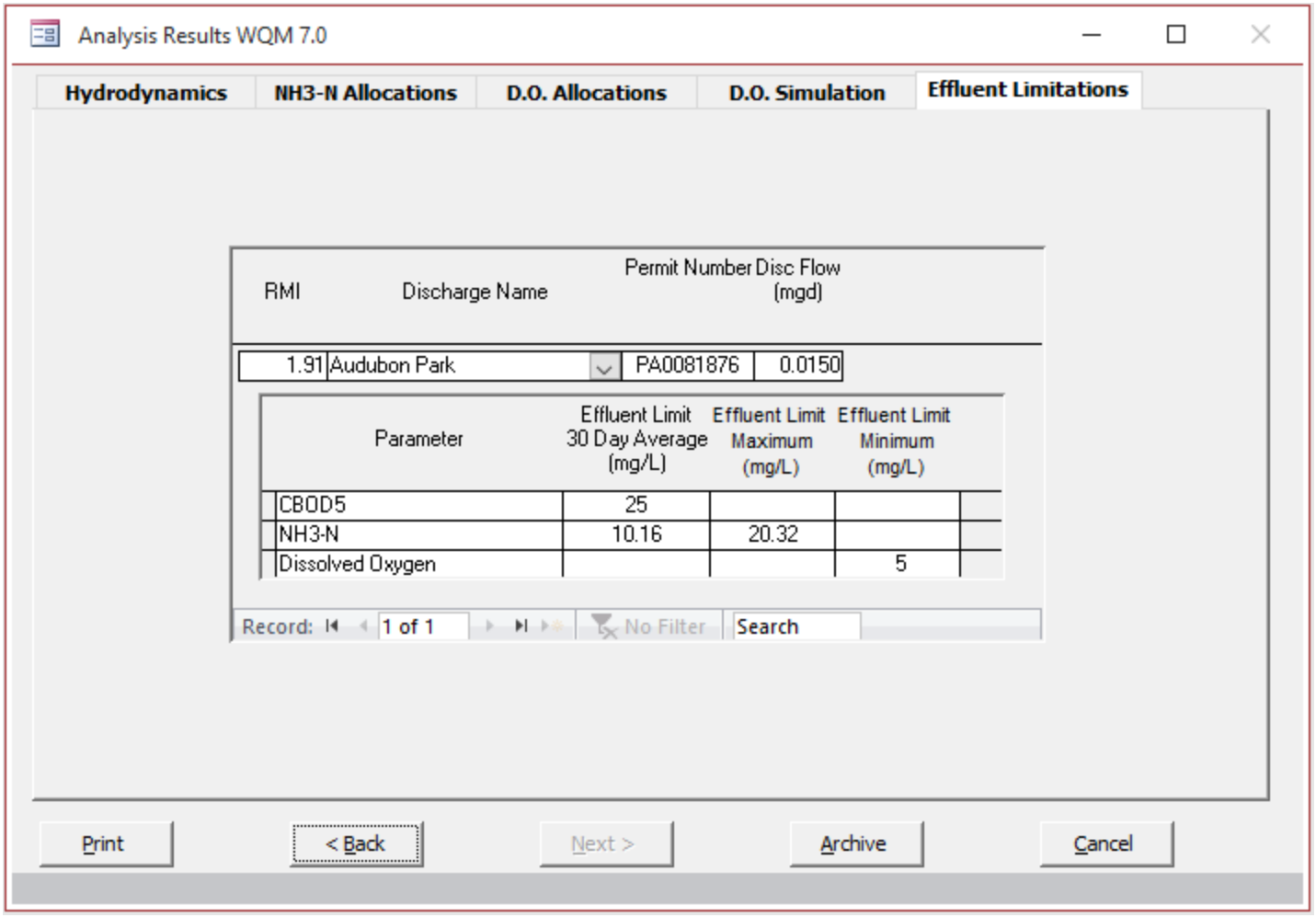
Low-Flow Statistics Flow Report [99.8 Percent (212 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	78.9	ft^3/s	38	38
30 Day 2 Year Low Flow	88.2	ft^3/s	33	33
7 Day 10 Year Low Flow	58.9	ft^3/s	51	51
30 Day 10 Year Low Flow	64.5	ft^3/s	46	46
90 Day 10 Year Low Flow	74.3	ft^3/s	36	36

Low-Flow Statistics Citations




Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
1.91
Audubon Park
PA0081876
0.0150
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
10.16
20.32
Dissolved Oxygen
5
Record: 1 of 1
No Filter
Search
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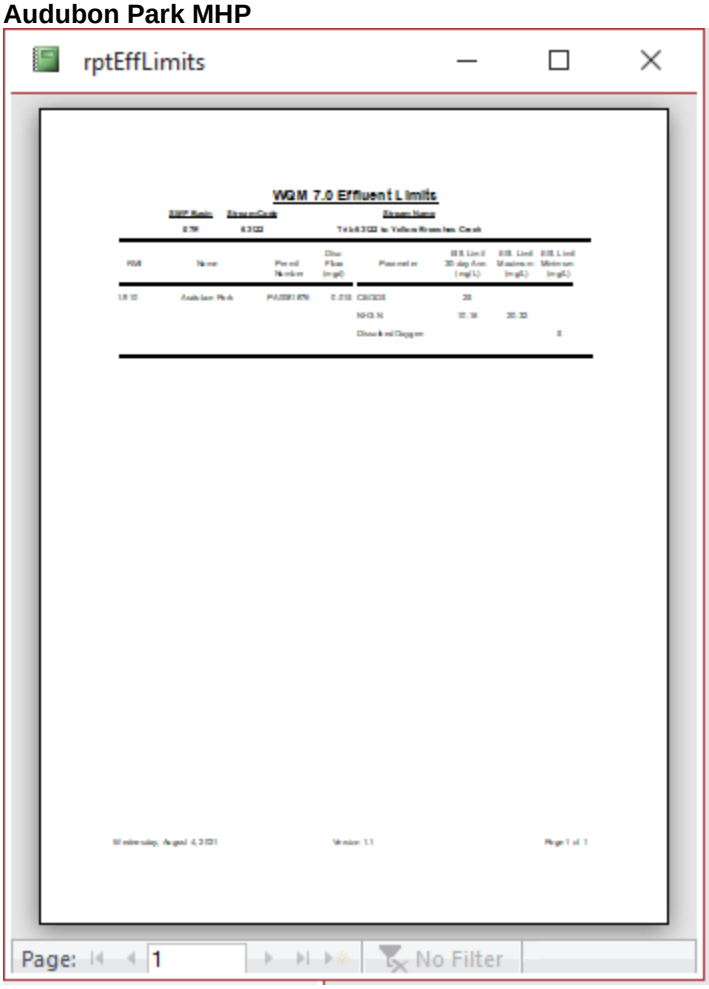
Archive
Cancel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WQM 7.0 Effluent Limits
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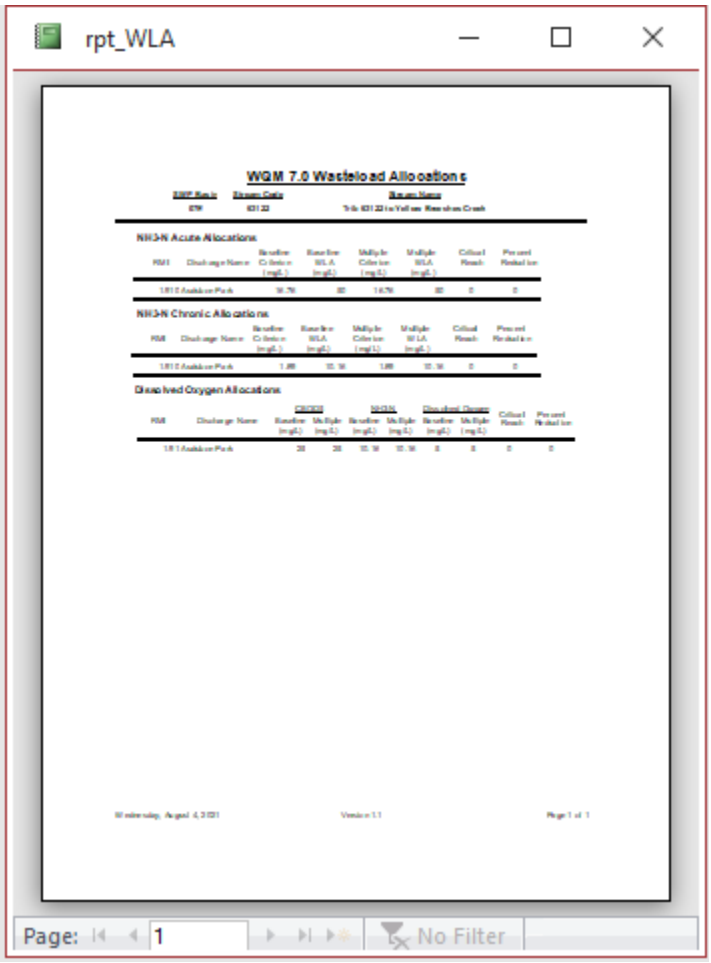
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WQM 7.0 Wasteload Allocations
NH3-N Acute Allocations
NH3-N Chronic Allocations
Dissolved Oxygen Allocations
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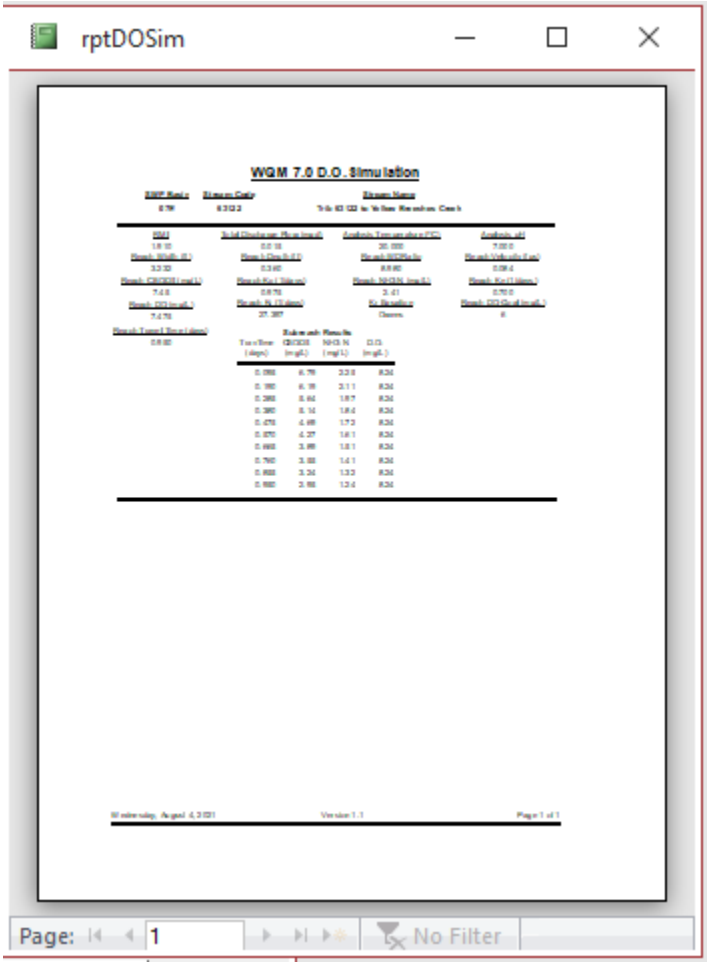
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WQM 7.0 D.O. Simulation
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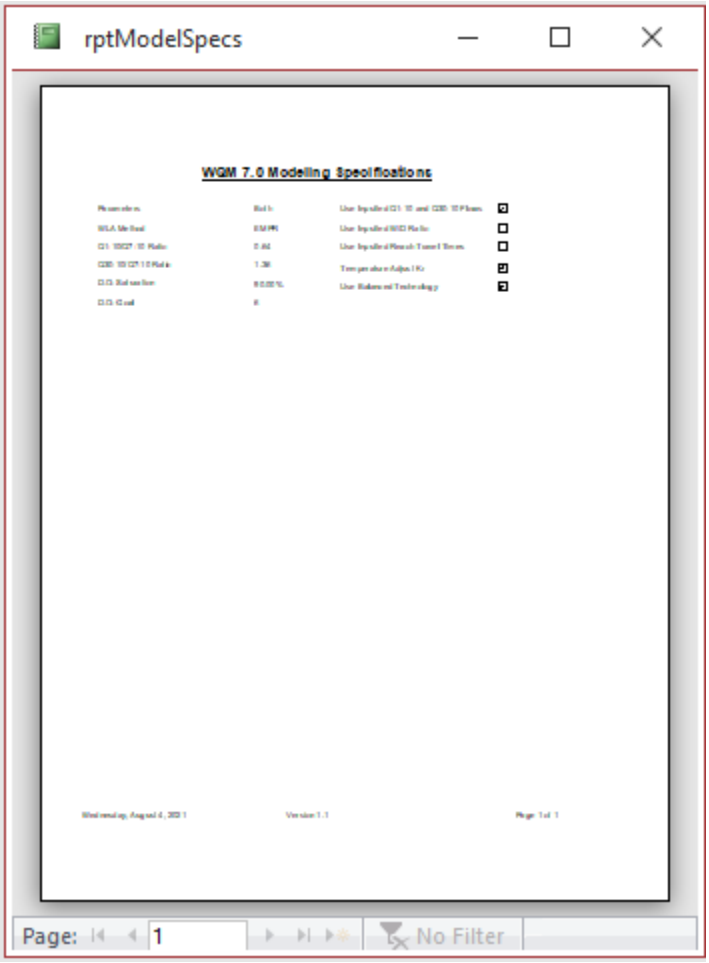
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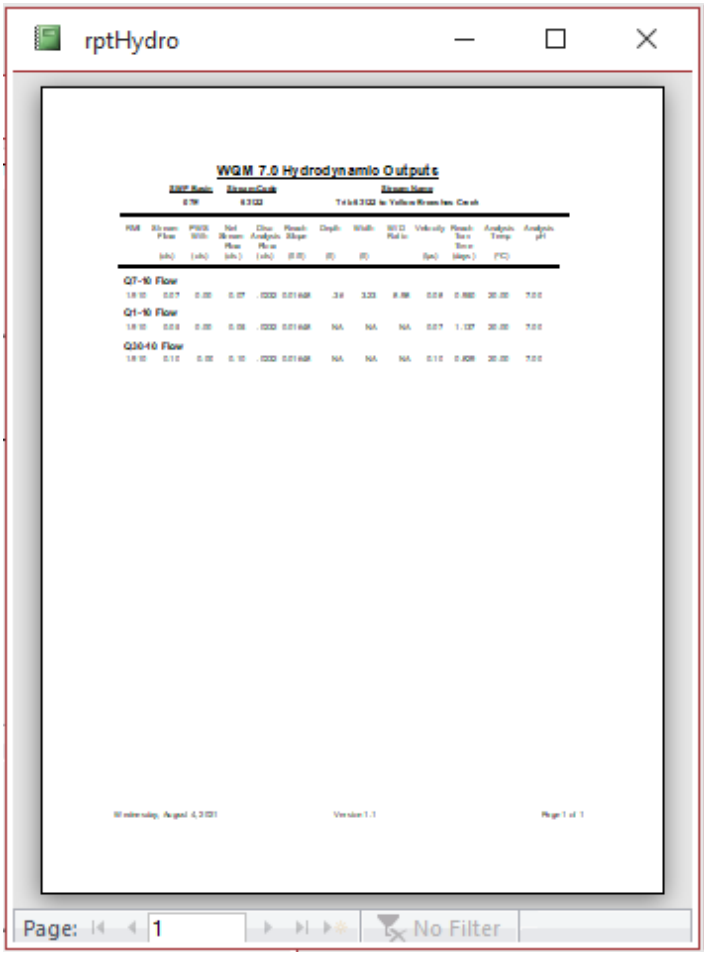
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Q7-10 Flow
Q1-10 Flow
Q30-10 Flow
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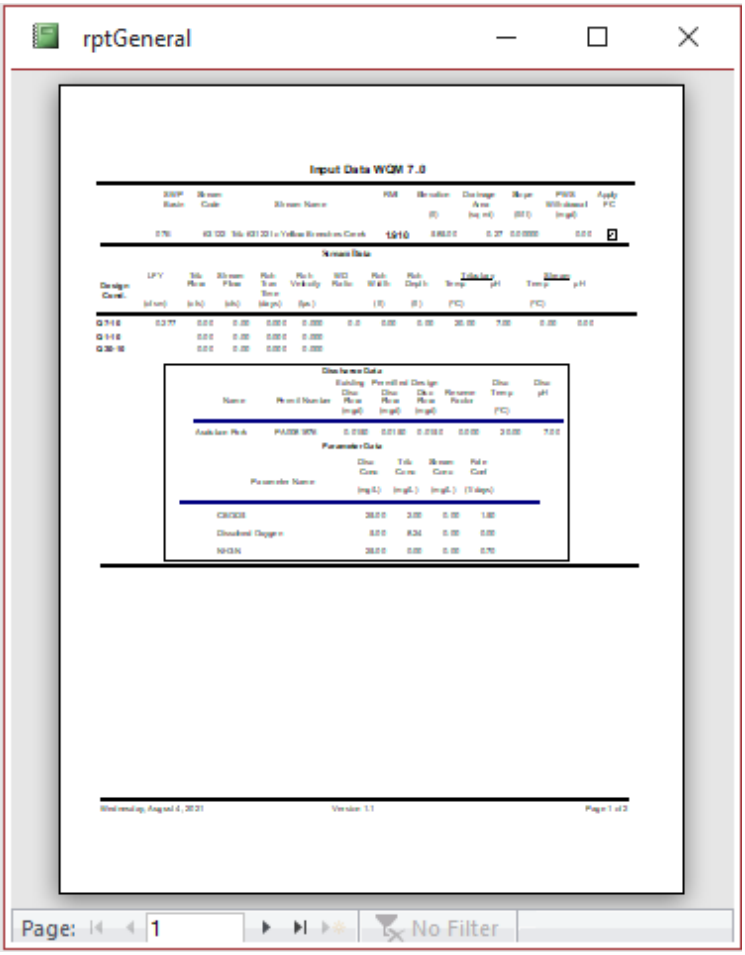
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Input Data WQM 7.0
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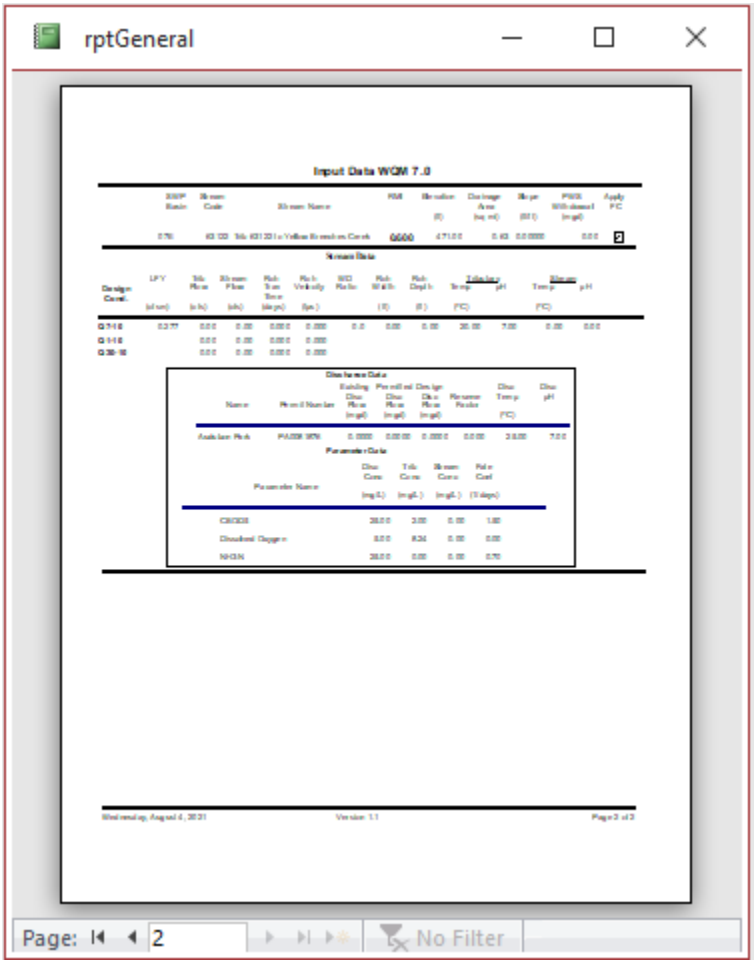
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Input Data WQM 7.0
Page: 2
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TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.075	= Q stream (cfs)	0.5	= CV Daily
0.015	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1.050	1.3.2.iii	WLA cfc = 1.016
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.391	5.1d	LTA_cfc = 0.591

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.482	AFC
		INST MAX LIMIT (mg/l) = 1.575	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	10	XXX	20	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10	XXX	20	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	Report	Report	XXX	XXX	XXX	XXX	2/month	Calculation
Net Total Phosphorus (lbs)	Report	Report	XXX	XXX	XXX	XXX	2/month	Calculation

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4.0	2/month	8-Hr Composite

Compliance Sampling Location:

Other Comments:

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	Report	Report	XXX	XXX	XXX	XXX	2/month	Calculation
Net Total Phosphorus (lbs)	Report	Report	XXX	XXX	XXX	XXX	2/month	Calculation

Compliance Sampling Location:

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other: